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EDITORIAL

Lung tumour ablation – where are we now?

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Abstract

Ablation of lung tumours is the fastest expanding area within interventional oncology. Radiofrequency, laser, microwave and cryotherapy have all been shown to be effective. Which of these ablation technologies becomes the preferred technique for lung tumours remains to be seen.

Keywords: *Lung tumour; ablation.*

Ablation of lung tumours is the fastest expanding area within interventional oncology. Radiofrequency, laser, microwave and cryotherapy have all been shown to be effective. Which of these ablation technologies becomes the preferred technique for lung tumours remains to be seen. The National Institute for Clinical Evidence (NICE) reviewed the published literature and published their findings in July 2006 (http://www.nice.org.uk). NICE concluded that the safety profile was sufficiently well understood for ablation to be performed but that its role relative to other treatment modalities was not clear. Their recommendation was that ablation should be performed within the context of multi-disciplinary team meetings, audit and research. On this basis ablation is offered to patients with inoperable, small volume lung tumours. Establishing the role of ablation will take some time. Within our practice the vast majority of patients have metastatic disease. Repeated surgical intervention for pulmonary metastases is an accepted part of the management of patients with sarcoma. This is not the case for patients with colorectal metastases. Recent debate in the literature has called for a review of the evidence for surgical resection in colorectal metastases. There has never been a randomised controlled trial looking at the effectiveness of surgical resection in colorectal metastases, either liver or lung, yet both are widely practiced. It seems likely that it will be future ablation trials that provide the evidence for local therapy in these conditions.

There are a surprising number of patients with limited metastatic disease for whom resection is not feasible. Three small metastases in three separate lobes, located deep within the parenchyma are difficult/impossible to resect, but can be ablated. Ablation is a minimally invasive technique that also provides maximal preservation of normal parenchyma. These features allow us to apply this technique in a number of situations where surgery is not applied. Many surgeons are reluctant to perform a major procedure, with all the attendant risks and morbidity, in biologically unfavourable situations, e.g. breast or melanoma metastases or a patient with multiple colorectal metastases which have developed within a short interval of resection of the primary. Yet a minimally invasive technique such as ablation may well be reasonable in these situations. Similarly, it is possible to ablate more numerous and more widely distributed tumours. Most centres will ablate <3 metastases/lung but it is possible to sequentially ablate more than this, maybe <5/lung and in more indolent tumours, e.g. gastrointestinal stromal tumours (GIST), maybe more. The question remains as to how oncologically useful this will prove to be.

Ablation in patients with metastases and good baseline lung function is relatively straightforward. Individual metastases are readily ablated under conscious sedation. Larger tumours, some locations such as adjacent to the diaphragm or ablation of multiple metastases, 3 or more in one session, often requires general anaesthesia. The most common complication, pneumothorax, occurs

in approximately 40% of patients, with 10–15% requiring intervention, either aspiration or drainage[1]. Whilst common, pneumothoraces are easily monitored and readily controlled. Repeated CT fluoroscopy is required to monitor the ablation and the electrode position. It also provides feedback on the size of any pneumothorax, the rate of development and by extrapolation an idea of the size of the air leak.

The role of ablation in primary lung cancer is more complex. Questions that still need to be answered include whether it is useful to ablate Stage 1A tumours in patients who are medically inoperable or whether their concomitant medical co-morbidity is the more dominant contributor to their reduced survival? For more advanced disease, it seems very likely that radiofrequency ablation will be used in inoperable patients in combination with radiotherapy[2].

Currently radiofrequency ablation is offered to patients with inoperable but limited numbers of small metastases, most commonly metastases from colorectal cancer[3], sarcoma, breast or melanoma[4]. Small, inoperable primary lung tumours can be treated in isolation, in conjunction with radiotherapy to the primary lesion or to the mediastinum. For larger primary lung tumours a combination of ablation and radiotherapy is generally recommended.

A series of trials are required to elucidate the role of ablation in lung tumours. This will be a fertile area for research for many years to come.

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